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| ***Lesson Plan- Ms. Ali-ESL- class 812*** |
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| *Aim: SWBAT establish a* classroom composting experiment by demonstrating why worms are called "nature's recyclers." |
| ***H.W.:*** describe in journal the steps to creating a worm compost |
| ***EQ:*** Why is it important to create good soil for our vegetables? |
| ***Materials:*** ,   * two see-through plastic containers of the same size, with lids (optimum container size might be a foot square and 6 inches deep); air holes should be punched in sides and lid of container * earthworms * garbage items: chopped carrots work well for this activity, since their bright color contrasts with the soil; other possible items include apple pieces or shavings, coffee grounds, and crushed eggshells. * student journals |
| ***CCLS:*** R.I.4, W.2.a,b,c. |
| ***Obj:*** Students will   * predict what will happen in two (control and experiment) containers -- one with soil and trash, the other with soil, trash, *and* worms. * learn why some people call worms "nature's recyclers."   discuss how worms can help solve environmental problems |
| ***Lang.obj:*** students will describe one part of the process to another student in jigsaw activity |
| ***Instr.groups based on data:*** |
| ***Vocab:*** Worms, earthworms, recycle, compost, garbage, trash, biodegradable |
| ***GP:*** In this experiment students observe firsthand how earthworms transform garbage into compost.  Start with two see-through plastic containers of the same size; the containers should have lids. (One large tub, divided in half with a plastic separator, is an alternative.) Punch small air holes in the lid of the container and along the sides. Spread about 2 inches of rich soil in the bottom of the container. Spread over the top of the soil some common garbage items. Chopped carrots work well for this activity; if you arrange some of the garbage so you can see it through the container, you should be able to observe daily changes. Other items that might be appropriate include apple pieces or shavings, coffee grounds, crushed eggshells... *Do not use meat or dairy products because they will smell bad.*  Be sure each container contains equal amounts of soil and garbage items.  Cover the selected garbage with two inches of soil. Then add earthworms to *one container only* (or to one side of a divided container). For a container this size, a few dozen worms should suffice. The container without the worms is the *control* for this experiment. You might ask students to record in their journals predictions about what will happen to the two containers over the next couple of weeks.  Notes: Wet the soil to keep it slightly damp. *Do not over water. You do not want water collecting in the bottom of the container.* When not being observed, it is best to keep the container(s) in a dark place, such as a closet, because earthworms will shy away from light. During the next two weeks, observe and compare changes in the control and the worm-filled containers. If you cannot see through the containers, gently dig up the garbage after two weeks. |
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| ***Summary/Assessment:***  ***Diagnostic-***KWLchart  ***Performance-*** “how to” step by step directions of creating a worm compost bin  ***Formative-*** Ask students to write a paragraph describing what they learned from the experiment. Provide several word prompts that they must include in their paragraphs; for example, worms, compost, and recycle  ***Summative-*** |
| *Next steps:* After two weeks: Discuss the results of the experiment. What happened to the trash in the container with the worms in it? in the container without worms? How did changes in the two containers differ? Why? (Earthworms "digest" the garbage and soil, producing richer soil.) How can worms help cut down on trash? |
| *Reflection:* |